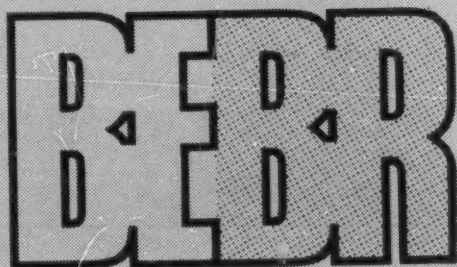




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DOES UTAH HAVE A CAPITAL GAP?

*(Includes a discussion of capital
programs in Utah and other states)*

Jan Crispin and John Brereton¹

Utah's entrepreneurs need investment capital. But so do entrepreneurs in Silicon Valley or Route 128 or any one of a dozen established or emerging high tech centers. The search for investment capital is an ongoing odyssey for entrepreneurs everywhere. To provide some insight into this search, this study discusses the issues surrounding risk capital in Utah. The objective is to identify the components of risk capital and the environment that attracts such money. It also discusses the array of financial (and non-financial) resources that are available to the Utah entrepreneur and the appropriateness of each given the nature of Utah's high tech sector.

Risk capital is commonly called venture capital. Its purpose is to provide small, usually technology-oriented firms with the money needed to manufacture and market a technology-based product. In return, the provider of this money generally takes an equity position in the firm hoping to make a large profit when the company "goes public". It is a widely held belief in many states actively pursuing high tech development, that the lack of venture capital is the only missing component in the potential emergence of a "Silicon Valley II" in the area under discussion. It is within this framework that Utah's venture industry is discussed.

Overview of Venture Capital in Utah

Utah's venture capital industry is young. Perhaps the state's earliest attempt at assisting entrepreneurs was the formation of the Utah Innovation Center (UIC) in 1978. Certainly, high tech firms had already been financed by venture capital prior to this date, but these investments were made by out-of-state venture firms, or by individuals

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This is the second in a two-part series dealing with the issue of venture capital and financing in technology-oriented firms. These papers are part of a broad study of Utah's high technology sector. Funding for the study has been provided by the Centers of Excellence Program, Utah Technology Finance Corporation, and the University of Utah. This financial support is sincerely acknowledged.

on an informal basis. Although UIC was not a true venture investor in the strict sense of the role, it provided the entrepreneur with incubator services which may have otherwise been beyond the young firm's resources. And while the Center did not directly provide money to these fledgling firms, it did assist them in locating risk capital. The formation of UIC was really the first step in the formation of the state's venture industry.

If the formation of the Utah Innovation Center is recognized as a watershed, then technically Utah's venture industry is only 10 years old. To put this in perspective, banks such as Citicorp, Bank of America and First National Bank of Boston were providing equity dollars to entrepreneurs through the SBIC program in the 1960s -- a time when Utah's venture market was virtually nonexistent.

In 1983, the Utah State Legislature established the Utah Technology Finance Corporation (UTFC) to provide funding and support for Utah entrepreneurs. The UTFC program received an initial funding level of slightly more than \$2 million. Under the program's guidelines entrepreneurs could receive up to \$50,000 in grants to pursue the development of an idea. In 1985, this program was challenged by the state attorney general and did not resume activity until 1986.

It was 1986 before the state had a Utah-based, private venture capital fund -- Utah Ventures (formerly Utah Technology Venture Fund I). Another private fund called Eagleplace Partners was established in 1987. At present, these two private venture capital funds manage approximately \$4.5 million. Comparatively, prominent venture centers like Boston, New York and San Francisco have a 20-to 25-year head start on Utah's venture industry, and secondary centers like Chicago and Philadelphia have a 10- to 15-year jump.

While Utah's venture capital industry is young, its venture infrastructure is even younger. Only recently have technology-oriented accounting, law, marketing, and consulting firms emerged in the local market. One company president who had just moved from Silicon Valley to Utah to head a high tech firm put it this way: "All I had to do [in California] was drive from my home to my office, and I would pass the world's largest and most active venture capital firms, the best marketing firms, dozens of legal and accounting firms that specialize in high tech

services. And my home was only 30 minutes from my office."

On the bright side, Utah's venture capital industry, especially that segment involved with funding seed/idea companies and young startup companies, has grown very rapidly in the past ten years. Much of this growth has been in response to a R&D environment which is much older, and to a surge of entrepreneurial activity.

Size of Utah's Venture Capital Industry

Because the venture industry in Utah is a relative newcomer, it is not surprising that the dollar volume of venture capital is small. There are no \$50 million funds or even \$10 million funds in the state. The largest single local fund is \$4 million managed by Utah Ventures. Eagleplace Partners, another private venture fund, has raised \$800,000. This venture manager, as well as others in the state, is trying to raise additional dollars for venturing. For now, however, there are very few dollars to spread over an increasingly large entrepreneurial base.

The Implication of Size on Utah's Venturing Capabilities

The modest dollar volume of Utah's venture industry creates some problems for local entrepreneurs. First, small firms must rely on out-of-state venture investors. They must attract investors who may already have an enormous number of opportunities closer to home. A typical venture investor, for example, receives hundreds of proposals every year from high tech firms requesting capital. While the industry practice of co-investing brings in dollars from all over the country, it is clear that local entrepreneurs and fund managers must make inroads into the national venture market if they are to attract sufficient risk capital.

Secondly, when a local venture investor does invest in a home grown high tech firm, by necessity, the capital infusion must be small. The funding level range of Utah Ventures illustrates this point. First round financing by this fund manager ranges from \$50,000 to \$250,000, yet average financing by independent venture firms for early stage companies is \$2.3 million. Using the national funding levels as a guideline, Utah Ventures, the state's largest fund could finance just two deals without outside participation. Again, local fund managers do leverage their

investment through co-investing; and while this strategy helps, it is difficult to act as a lead investor in very many deals without significant capital increases.

Finally, given their limited capital resources, local fund managers must be extremely selective in their investment process. Unlike a \$50 million fund, a small fund cannot tolerate serious losses. The average industry failure rate of 60 percent is fatal to a small fund with a small portfolio. At the same time, because of size, Utah funds have a difficult time facing the challenge of adequately diversifying their portfolios. This deters potential institutional investors.

Is There Enough?

One of the most controversial issues surrounding high tech development in Utah is the perceived lack of risk capital. "Is there enough?" is probably the most commonly asked question regarding venture capital in Utah. Every business person, venture capitalist, entrepreneur and high tech executive interviewed for this study had an opinion, most often, a very strong opinion on this topic. A small percentage of those interviewed felt there was an adequate supply of venture capital. They generally tempered this statement by admitting that it may be difficult to get, but nonetheless, money is there for worthwhile projects. Most others, however, voiced a different opinion. They believed that there are too few venture dollars chasing too many deals. With few exceptions, they cited the Joint Economic Committee (JEC) study on *Venture Capital and Innovation* study as the definitive evidence for the regional capital gap.² Assuming that Utah does have a capital gap it is important to understand why this is the case.

Geographical Discrimination?

Venture capitalists located outside the state would agree with their local counterparts that areas or regions have differing levels of ability in attracting venture dollars. When asked in the JEC survey, "Do entrepreneurs in some states and regions have more difficulty in attracting venture capital than entrepreneurs with comparable deals in other states and

regions?" the overwhelming majority said, "Yes"; (corporations - 95%, private venture firms - 93% and, Small Business Investment Companies (SBIC) - 88%). When asked to rank either state or regional access to venture capital as "Excellent or Good", the Mountain and Plains region ranked last by both the SBIC and independent venture funds, and eighth out of eleven by corporate funds.

The JEC study also reported that independent venture capital firms invest about 36 percent of their funds in companies within a 50-mile radius of the home office, 17.7 percent within a 50- to 200-mile radius, and 36.1 percent beyond a 500-mile radius. The percentages were slightly different for SBIC and corporate venture funds.

As evidenced by recent investment patterns, proximity to venture markets does influence investment patterns. Venture capitalists are more likely to invest close to home, and for most of them, home is in the northeast section of California. There is less agreement among venture capitalists as to the importance of proximity as a deciding (not influencing) factor in the investment decision. In an informal telephone survey, selected venture capitalists were asked if they would consider an investment in a Utah firm. Without exception, all of those questioned answered "Yes". It is recognized that the question invited a yes response as the venture investor had nothing to gain except adverse publicity or missed opportunity by responding negatively. However, the investor went on to say that they had investments in many companies throughout the nation and that location in and of itself is not a deciding consideration. If actions speak louder than words, then this seems to be the case. Several prominent outside venture capital firms have already invested in Utah companies.

Economic theory reasons that location can indirectly influence investments. Investing in a Utah firm, for example, may result in higher investment costs. These costs range from higher information costs to increased traveling expenses as well as intangible costs such as time. Time is an important cost to venture capitalists. He or she can only manage so many investments, so there is an incentive to either invest close to home, or to group the investments geographically. Therefore, to compensate the investor for the added time spent, the deal must offer more than if it were located closer to the investors "home base". The investor may require that the company be more mature, or that it have

²Joint Economic Committee, "Venture Capital and Innovation," A study prepared for the use of the Joint Economic Committee Congress of the United States. (U.S. Government Printing Office, Washington, D.C. : 1985) December 28, 1984.

the potential to earn a higher rate of return. The investor is acting rationally and although a higher rate of return may be required for Utah deals, this is not necessarily a discriminator; a more appropriate term would be disadvantaged, and an important difference exists between being discriminated against and being disadvantaged.

Are There Enough Good Deals?

Out-of-state investors place more emphasis on the availability of good deals than on geographical proximity as an explanation for the access to venture markets. Regional differences in the availability of good deals was the most significant reason for regional variation of venture dollars in the JEC study. There is little disagreement among venture capitalists as to the main features of a good business deal. In order, management, innovation, and market potential are the key characteristics.

Local investors interviewed for the report said there were plenty of high tech opportunities in Utah. They also volunteered that most of these deals lack one or more of the essential ingredients that make a good deal. This weak link generally is on the business side rather than the innovation side. Many high tech companies in Utah lack the business experience and expertise that venture investors require.

The majority of founders interviewed agreed with this assessment. "We are engineers, not MBAs," was said more than once during many of these interviews. There are other clues that the innovation expertise is ahead of business acumen. For example, most local venture capitalists spend much more time with a company than the average reported by other venture investors. Second, many of the new innovations that lead to a new high tech company are pursued on an incremental basis. This approach usually leads to weak business planning by the part time entrepreneur. Third, the research and development capability in Utah's high tech sector is far ahead of its business or commercial development. This headstart reflects many factors: the role of the universities; the lack of capital; a dearth of home-grown, successful high tech companies; and importantly, a lag in entrepreneurial awareness. One venture firm said it had identified 180 potential high tech firms as possible investments and that it could fund at least four or five deals every month if the capital resources were available.

On the other hand, the number of good deals in the state is possibly overstated. Assuming that the

capital market is efficient, and the evidence is such to support this assumption, money will find the good deals. Although there is unquestionably a large amount of innovative and technological activity in the state, even with an infinite amount of capital, not every good idea, new innovation, or cutting-edge technology will result in a viable product.

Management

Management is a multi-faceted issue. It is a prime consideration in attracting venture capital to the area. From the perspective of a venture capital fund, it takes the form of the management capability of the founder/entrepreneur. From the perspective of the institutional fund, it is the issue of a fund manager's track record.

Management of the Company - One of the deciding factors in the investment decision is the capability of the high tech firm's management team. The strength of this team will determine the amount of time an investor must spend in order to safeguard his investment. The better the team, the less day-to-day involvement will be needed by the investor. This will cut the costs associated with the investment and ultimately will make the company a more likely candidate for venture funds. While investors do take an active role in the company, daily management activities are left to others.

A distinctive characteristic of Utah's venture industry is its involvement with management. Local venture capitalists are much more involved with their portfolio companies than the typical venture investor. This involvement goes beyond the strategic issues such as marketing and follow-on financing. Local investors tend to be involved in virtually every aspect of the company's development. From an industry perspective this is unusual. Such extensive involvement may reflect the need of local investors to ensure a higher success rate than industry standards, or it may reflect a lack of management acumen by local entrepreneurs, or possibly it may mean that the local venture groups are getting involved in the company too early.

Management of the Fund -- As a young capital market, local venture investors are just now acquiring the track record necessary to attract large institutional investors. Investors such as pension funds, insurance companies, and corporations rely heavily on a fund manager's track record as a barometer to measure his or her future success. This explains why experienced managers are in demand

and why inexperienced managers have a difficult time attracting funds. For example, industry veterans, defined here as fund managers with more than 10 years of experience, manage the bulk of pension funds and are the most successful in raising new funds. For all of 1986, experienced managers raised 74 percent of the total capital. On the other hand, inexperienced managers struggle to gain inroads into the institutional market and to raise dollars for new funds. This situation is common to all investment management; all newcomers face the same hurdle. As Utah fund managers become more experienced, their ability to raise additional money will be enhanced.

Programs Available in Utah

Although Utah's venture financing industry is young, notable efforts and achievements have been made in developing and nurturing capital for fledgling high tech companies. The following discussion includes a brief description of the programs currently underway and the level of investment that each program is willing to fund.

Seed/Early Financing

As mentioned in the venture capital section, the venture capital industry is not a likely funding source for companies at the pre-startup and seed stage. Such companies have an idea and little else. They are seeking capital to prove their idea or innovation through R&D. Without a business plan or management team it is difficult for an outside investor to evaluate the commercial potential of the innovation. Another barrier is the rate of return required by the venture investor. Because an investment in a seed company extends the investment horizon, the potential return or profit must be significantly higher than for a shorter horizon and less risky investment. An independent venture capitalist may well require a 75 percent compound rate of return on a venture investment for seed and pre-startup. Very few companies at the seed stage can demonstrate this level of return.

If other venture capital markets steer away from seed and pre-startup companies, or early-stage companies, venture firms in Utah seem to thrive on them. Several venture firms, especially incubator firms, specialize in seed investments. The Utah Innovation Center, Genexus, and Utah Technology Finance Corporation all specialize in seed investments. Even Utah Ventures leans toward financing younger firms, acting much like a feeder fund for larger out-of-state venture partnerships. Utah Venture's initial funding level of \$50,000 to \$250,000

works well for companies at the seed or early startup stage. The federal SBIR program is another source of seed money for Utah firms. These and other programs are discussed below.

Utah Technology Finance Corporation (UTFC)

Utah Technology Finance Corporation is a state-chartered, non-profit organization established in 1983 to encourage high-growth technology-based business in Utah. The funding objective of UTFC is to provide these high growth research opportunities with funding, entrepreneurial support, and assistance in securing follow-on funding from private investors and venture capital firms.

To help entrepreneurs secure initial funding, UTFC established the Utah Small Business Innovation Program (SBIP). Under the auspices of SBIP, small companies which show promise for commercial success and growth can receive funding ranging from \$30,000 to \$50,000. These monies can be used for research, prototyping, testing or refinement (including direct expenses and overhead). UTFC does not charge interest on these funds; rather, it takes a royalty position of 3 percent on sales arising from a successful program. The obligation continues for six years or until the funding is repaid three times. UTFC has provided a total of \$2.2 million to 44 different high tech firms in Utah. A list of these firms is shown in Table 1.

UTFC also administers the "Utah Partnership" program. Under this program, UTFC will participate with private or public economic development entities by providing \$50,000 or 40 percent of a Local Innovation Fund (LIF). The entity provides the remaining 60 percent for a LIF total of \$125,000. Current partnerships exist with the Bear River Association of Governments, the cities of Orem and Provo, Ogden City/Weber county, and San Juan county/College of Eastern Utah.

Over the years UTFC has expanded its role in helping the Utah entrepreneur, by organizing a participating loan program with the area's largest commercial banks to provide additional funding for firms. Under this loan program, UTFC participates with local banks in providing loans to small high tech firms. UTFC's participation is limited to 30 percent of the loan while the bank provides the remaining 70 percent. Loan disbursement and repayment is on the basis of UTFC funds being "first in and last out". In addition, the UTFC position would

Table 1
Recipients of Utah Technology Finance Corporation Awards

<u>Round 1</u>	<u>Round 3</u>	<u>Round 4</u>
Lee Scientific	Bioactives	NPI
Farmington Bay Robotics	Bio Process Systems	VaporFab, Inc.
Bonneville Scientific	Multilayer Optics	JMW Acquisition
	Pan Agro, Inc.	Enduratek
Total Awarded:	Enhanced Engineering	Advanced Holographics Corp.
\$201,000	High T*ch, Inc.	Aggra-Insulate Marketing
	Medical Physics, Inc.	Axonix Corp.
<u>Round 2</u>	Harding and Harris	Cache Valley Technology, Inc.
Alton Dean Medical	Theratek, Inc.	Canyon Medical Products
Hart Scientific	MIDMID, Inc.	Capital Solutions, Inc.
Medical Physics	Bonneville Microelectronics	Ceramatec, Inc.
Radius Engineering	Reliance Technologies	Teca, Inc./Terra Tek
& Tooling		Globesat, Inc. (2 awards)
		H.B. Imaging, Inc. (2 awards)
Total Awarded:	Total Awarded:	International Healthcare
\$171,000	\$881,000	Consulting Group
		Royal Pharmaceutical Corp.
		Total Awarded:
		\$1,000,000

be subordinate to the bank position. Three high tech firms in Utah have taken advantage of this special program.

Small Business Innovation Research (SBIR)

One program local entrepreneurs are using successfully to fund initial research and development is the Small Business Innovation Research program (SBIR). Although this program is not a venture arrangement, its financial contribution has become very important to Utah's entrepreneurs. The SBIR program provides needed dollars to local high tech companies. As one high tech executive exclaimed, "It is like money from heaven. We are paid to do something we would do anyway."

The SBIR program came into existence in 1982 with the enactment of the Small Business Innovation Development Act. On October 1986, the program was extended through September 30, 1993. The act requires federal agencies with research and development budgets in excess of \$100 million to establish a SBIR program. The objective of the program is to help small firms compete for federal contracts. At present there are 11 federal agencies participating in this program. Since the SBIR program began in 1982, a total of 5,713 Phase I and 1,266 Phase II funding agreements have been awarded throughout the United States.

Under the law, the SBIR program is a three-phase process. Phase I grants are based on proposals solicited by one of the 11 participating agencies. These solicitations contain research topics that are of interest to a specific agency. Firms are invited to submit proposals that address the research topic request. The object of this phase is to determine both the technical feasibility of a proposed project and the quality of research that the small firm can provide. Awards of up to \$50,000 are given for a six-month research effort by the selected company. Those companies which successfully complete Phase I projects can compete for Phase II funding to further develop the proposed idea. Phase II is the principal R&D effort. These grants are used to expand the results of the initial development and are based upon those results and the technical merit of the Phase II proposal. Most awards for Phase II are expected to be between \$200,000 and \$500,000. The duration of the award normally does not exceed two years.

Phase III is conducted by the business to pursue commercial applications of the R&D conducted in the previous two phases. Non-federal funds, including those obtained through exercising the follow-on funding commitments are emphasized in Phase III. Phase III may also involve follow-on, non-SBIR funded R&D or production contracts with a federal agency.

Table 2
Utah Companies Receiving SBIR Grants
Phase I and Phase II

Company Name	Phase I	Phase II	Total Amount Awarded
AMTEK Corp.	1	0	\$ 50,000
Biomaterials, Int.	6	0	340,000
Bonneville Scientific	6	4	1,445,796
BSD Medical	1	0	49,960
Ceramtec, Inc.	7	6	1,586,000
Collision Safety Engineering	1	0	49,750
DMS Systems	1	0	45,665
Daedalus Research, Inc.	1	1	349,909
Deseret Research Company	5	2	706,077
El Dorado Engineering, Inc.	1	1	96,676
HEC Software, Inc.	1	0	30,000
JTP Radiation, Inc.	1	0	49,993
Lee Scientific, Inc.	4	2	520,642
Megabar Corporation	2	0	196,918
Mesa Corporation	1	0	49,822
NPI	11	2	584,380
Ralcon Company	2	0	104,608
Rocky Mountain Research	1	0	50,000
Rogers & Assoc. Engineering	4	1	345,532
Sitar, Inc.	1	0	49,920
Space Systems Engineering	3	1	355,617
Strat Company	1	0	48,858
Technical Research Assoc.	22	1	1,323,098
Techniscan	1	0	50,000
Terra Tek, Inc.	2	1	321,265
Therapeutics Technologies	1	0	45,850
Topical Testing, Inc.	2	0	100,000
Utah Geophysical, Inc.	2	0	100,000
Waterford Testing Center	1	0	46,127
Total	93	22	\$9,092,463

Note: Data do not include awards made in 1982. Information is unavailable.

Source: Small Business Administration, Office of Innovation Research and Technology, Small Business Innovation Program.

Any independent, for-profit small business with 500 or fewer employees can participate in the SBIR program. This includes sole proprietorships, partnerships, joint ventures, associations, or cooperatives. Non-profit organizations are not eligible. The principal

investigator for each project must spend more than one-half of his or her time employed by the firm receiving the award. During Phase I, a minimum of two-thirds of the research and/or analytical effort must be performed by the proposing firm.

Since the program's inception, Utah firms have won 127 SBIR awards totaling \$10.6 million. In FY1986 alone, Utah firms were awarded 43 SBIR grants representing more than \$4 million in research and development funds. Furthermore, there is an emerging trend which portends well for Utah's high tech firms. Utah firms are winning Phase II grants in increasing numbers. In 1985, only three Phase II grants were awarded to Utah firms. In 1986, this number jumped to 11, or 26 percent of all Phase II SBIR grants awarded for the year. This improvement suggests Utah firms are developing a more sophisticated commercially-oriented research community. If this trend continues, it will boost Utah's reputation in the national venture capital industry. Of all the financing options in Utah, the SBIR program is the most successful in supplying young high tech companies with research dollars. A list of companies securing Phase I and Phase II SBIR grants is shown in Table 2.

Eagleplace Partners

Eagleplace Partners is a relatively new venture fund in Utah. Beginning as a consulting firm to high tech companies, Eagleplace Partners has recently raised an \$800,000 investment fund. The firm has plans to initiate a larger fund in the near future. Although Eagleplace has not yet engaged in venture financing, its plans are to invest in high growth companies at an early stage. Eagleplace Partners' investment strategy closely parallels that of the national definition for early stage financing. The company anticipates a typical financing range per company to be between \$100,000 and \$500,000. Furthermore, the fund plans to assume a management-intensive orientation that will allow for management involvement with its venture companies on a daily basis.

Utah Innovation Center/ Utah Innovation Associates

The Utah Innovation Center (UIC) was conceived and formed by the University of Utah under the direction of Dr. Wayne Brown. The Center was originally funded by the National Science Foundation; however, funding by this agency was terminated resulting in the inability of the University to continue future operations of the Center as a nonprofit

entity. As a result of this change, Dr. Brown reorganized the Center as Utah Innovation Center, Inc., a profit-oriented organization formed to assist, promote, develop and market high tech development and ideas.

Affiliates of Utah Innovation Center Inc. constructed three separate buildings in Research Park at the University of Utah which were leased to the Utah Innovation Center Inc. and to entities attracted to or established through the efforts of the Center. UIC has the resources to assist between six and 12 young high tech firms at any given time. Presently, there are only a few firms housed at the Center; however, according to the assistant director, the Center is currently considering the addition of several new firms.

Although the UIC is a privately-held corporation, a related company called Utah Innovation Associates (UIA) was formed in 1986 by the owners of the Center. UIA is a publicly-traded company formed "to assist in the creation, development, growth and financing of newly formed or developing businesses which are involved with the products and services derived primarily from high technology research and development."

UIA through its affiliation with UIC, has an investment position in the following companies. Although not a complete list, the following represents companies incubated at the Center:

Axonix Corporation -- Develops battery-powered portable printers.

Bunnell, Inc. -- Develops a high-frequency jet ventilator for newborns and infants.

EDL, Inc. -- Provides ultrasonic nebulizers for use by sufferers of asthma and bronchitis.

Globesat, Inc. -- Develops low-orbiting satellites.

Basically, UIC and UIA are related companies acting as innovation centers. Both of these entities are profit-oriented, although their financing relationship with those companies housed in the center is slightly different. As stated in the UIA prospectus, the organization intends to provide services to fledgling high tech companies for fees, as well as equity interests in such companies. UIC relies primarily on equity participation for its return.

Public and private sector innovation centers offer similar services to a young high tech firm. Both provide office space, conference facilities, and both offer a variety of services like accounting services, secretarial support and sometimes computer equipment and health and other benefit packages. Additionally, the objectives for both are the same; that is, to assist young high tech companies. There are, however, two important differences which separate a public center like a university-related incubator and a private center like the Utah Innovation Center. A private center is profit-oriented. Regardless of how the venture arrangement is structured, its goal is to make a profit. A publically-managed incubator is not profit-driven. Its goals may include the development of a technological center, the stimulation of entrepreneurship, new job creation, or economic development. While these goals may be important to a private incubator, they are secondary.

The second major difference between a public and private incubator is their source of funds. Public incubators rely on public monies; private incubators rely on private investors, including venture capitalists.

Genexus Inc./Genexus International

The principals of UIC formed Genexus and Genexus International in 1985 to assist in the development of innovation centers and incubators in other high tech communities. These firms provide consulting services to universities, communities, and others seeking to establish innovation centers. Genexus has been involved in the development of innovation centers in several locations, including Utah State University in Logan, Utah; Florida Atlantic University, Boca Raton, Florida; the Tennessee Innovation Center, Oak Ridge, Tennessee; and an innovation center in Worcester, Massachusetts. Genexus plans to have 15 centers operating worldwide by 1989.

Seed financing of \$25,000 to \$50,000 is available through Genexus. The firm also arranges financing with out-of-state venture capitalists. Much like other local venture firms, Genexus is very involved with the daily management of the companies in which it invests.

Later Stage Financing

At the opposite end of the financial spectrum in Utah, few local venture firms are involved with

later stage financing; that is, companies at the second or third stages. One local venture investor explained it this way: "A local entrepreneur can find seed and early startup financing. There seems to be plenty. And if his company is successful, he has little trouble going public or merging. So we have both ends -- seed and fourth stage -- covered. What is missing is the middle financing; the second and third stages. There is an enormous gap between seed and going public. That's the problem."

Nationally, the average investment for second stage and later stage funding is over \$3.8 million. Even with a local firm acting as a lead investor, there simply are not enough later stage dollars.

Utah Ventures

Utah Ventures (UV) is a venture capital limited partnership formed in 1986. The stated objective of the partnership is "to make investments in early stage, growth-oriented, high technology companies which offer potential to generate exceptional investment returns." The funds' capital totals \$4 million. Utah Ventures is a venture fund, relying on equity participation. It assists in the management of the company on strategic issues (especially finance). The fund has acted as a lead investor. The initial investment can range from \$50,000 to \$250,000; often the fund will make a small initial investment and then make follow-on investments as needed.

Venture capital partnerships are the most commonly used vehicle for venture investments. Under this format, the general partner, usually the manager of the fund or the venture capital firm, manages the partnership's investment portfolio. The fund's limited partners, or its investors are passive.

Utah Ventures specializes in the funding of young growth companies primarily as a "feeder fund." The partnership's investment criteria focus on firms in the Utah region that specialize in technology-based products or services. To date, UV has invested over \$1 million in seven Utah high tech companies. This investment has drawn capital commitments from outside venture firms totaling \$18.4 million. A list of these firms and the total capital committed is shown in Table 3.

Banks and Financial Institutions

Venture capital is only part of the finance puzzle for companies at the later stage, or even for

Table 3

Firms Receiving Utah Venture Funds

Firm	Capital Committed
Anesta Corporation	\$ 680,000
Axonix Corporation	1,400,000
Cardiopulmonics	2,300,000
Clyde Digital	3,100,000
Motion Control	1,500,000
VaporFab	150,000
Westronix	9,000,000

companies at the early and seed stages. Venture capital bridges a gap by providing risk capital. However, as lenders, banks play the most important role in the development of a community's economy, including its high tech sector. Most high tech firms need banks for conventional financing, especially during the expansion stage. Yet, most banks are wary of high tech firms because they find the technical component of the business difficult to understand. Adding to the bank's caution is the fact that most high tech firms lack the financial capacity and the asset position required under conventional underwriting for loans.

Local presidents and CEOs of emerging high tech firms gave Utah banks mixed reviews. Most of the executives interviewed felt the local banking community lacked an understanding as to their company's business and financial needs. Several local venture capitalists expressed much the same opinion.

Banks everywhere are confronting the problem of meeting the special needs of high tech firms. Only a few have found a solution. It is not surprising that those banks that have found solutions are located in the most successful high tech centers. The Bank of Boston, for example, has become a leader in high tech finance. The solution in this case began with a commitment by the bank to understand the technical component of these special firms. It is much easier for an engineer-turned-entrepreneur to discuss his financing needs with an engineer-turned-banker or a banker who understands the development cycle of a high tech company than someone who knows little or nothing about technology.

Table 4
Overview of Utah's Financing Options for Technology Oriented Firms

<i>Later Stage Financing Options</i>					
	Utah Ventures Inc.	Banks	Independent Investors "Angels"	Certified Development Companies	
<i>Early/Seed Financing Options</i>					
Small Business Innovation Research	Utah Technology Finance Corporation	Utah Innovation Center	Genexus, Inc./ Genexus, Int.	Certified Development Companies	Independent Investors "Angels"

Source: Information compiled by the Bureau of Economic and Business Research from various documents.

The issue does not appear to be whether the local banking community or another institutional investor is risk adverse. Local banks have been aggressive lenders to other industries in the past, and several local banks are already reaching out to the high tech community as lenders and investors. If there is an all-important issue, it seems to be one of full commitment. Without the support of the banking community, Utah's high tech sector cannot reach its potential. As mentioned, Silicon Valley and Route 128 owe as much of their success to the banking community as to their proximity to universities. A commitment between a lender and a borrower is a two-way street. Not only must the finance community commit to high tech, but high tech must commit to the financial community. Advocates of high tech must help the banks overcome their wariness by drawing them into the high tech community at every possible opportunity.

Certified Development Companies

Certified Development Companies, (the SBA 503/504 program) provide another means for local entrepreneurs to obtain financing for their high tech ventures. The 503/504 programs are federally financed programs which offer special incentives to the entrepreneur. The loans are provided at a fixed rate for a longer period than most other loans. Banks are involved in this program by providing 50 percent of

the funds; SBA guarantees 40 percent of the loan and the borrower provides the remaining 10 percent. The loans are originated through a certified development company. Currently, Utah has three Certified Development Companies.

An overview of the financing structure and options for Utah's technology-oriented firms is detailed in Tables 4 and 5.

Other Possibilities

While the programs discussed previously are actually on-going, the state has two other programs that serve the high tech sector in a more unobtrusive and indirect manner. These are the Utah Retirement Fund and the Centers of Excellence Program.

Utah Retirement Fund

Utah Retirement Fund (URF) is the largest venture investor in the state of Utah. According to "Pension and Investment Age" the Utah retirement fund ranks 45th in the nation as a venture investor. URF recently increased its commitment to venturing activities. The fund has allocated approximately 3 percent of the retirement fund or about \$90 million for future venture investment. To date, a total of \$32 million has actually been committed to 13 venture

Table 5
Characteristics of Financing Options

Organization	Funding Stage	Funding Type	Financing Limits	Business Services	Status
SBIR Program	Early/ Later	G	\$50,000 500,000	N	F
UTFC	Early	D	50,000	Y	S
UIC	Early	E	NA	Y	P
Genexus, Inc.	Early	E	25,000 50,000	Y	P
Certified Development Co's.	Early/ Later	D	NA	limited	P
Independent Investors	Early/ Later	E	NA	possibly	P
Utah Ventures	Later	E	50,000 250,000	Y	P
Eagleplace Partners	Early	E	100,000 500,000	Y	P
Banks/Financial Institutions	Later	D	NA	N	P
Code:	Early -- Early/Seed Stage Later -- Later Stage NA -- Not Applicable	G -- Grant E -- Equity D -- Debt	F -- Federal Agency S -- State Agency P -- Private	Y -- Yes N -- No	

fund partnerships. These partnerships are managed by out-of-state venture firms.

URF selects its venture partners carefully. The selection process relies on the experience and track record of the venture firm. Like most pension funds throughout the nation, URF recognizes the opportunities of venture investing but is also constrained in pursuing those opportunities. This dilemma creates a unique role for URF and all pension funds. Having a fiduciary responsibility to the contributors of the retirement fund, URF feels it must select only the most experienced managers. As a result, none of the venture funds are managed by local firms; however, local investment advisors do manage equity and bond investments for the fund.

URF is a passive investor; that is, the full responsibility of investing falls on the venture fund manager (according to specific guidelines approved by URF). Once the funds are committed to the fund manager, URF is not involved. This is a typical structure in the industry. If any money returns to the state in the form of a venture investment, it is coincidental. However, money has flowed back into Utah. Nice Corporation, an Ogden-based company, is one example of a Utah firm receiving URF money from an outside firm.

Pension funds, on the whole, make excellent venture investors, with a long term investment horizon and long term objectives. Both of these characteristics fit venture investment. Pension funds

can make steady capital contributions and at the same time do not require capital withdrawals; again, this fits well with investment venture criteria. Lastly, pension funds need not rely on cash streams, in the form of dividends from their venture investments.

Centers of Excellence

Modeled after the National Science Foundation's University-Industry Cooperative Research Centers program, the Centers of Excellence Program (COEP) provides matching funds for interdisciplinary applied research and development programs. COEP was funded in 1985. The program has three goals:

1. To accelerate the growth of targeted technologies by catalyzing interdisciplinary research activities within Utah's colleges and universities;
2. To stimulate and assist the translation of research product from university laboratories into Utah's economy; and
3. To enhance the image of the state as a center of technology-based industry.

COEP has identified seven areas of technology that can have a major economic impact on the state. Twenty-two centers have already received research contracts and grants from a combined total of 123 private companies and 14 federal agencies and research institutions. Based on the current level of private funding and involvement in the program, the COEP has been very successful attracting research dollars to Utah. Published information shows that the \$2.5 million funded for the program has created \$38 million of research support.

While COEP does not invest directly in Utah high tech companies, its existence sends out the message to private industry that universities and colleges in the state are actively pursuing university/industry linkages.

What Are Other States Doing to Finance High Tech Growth?

States throughout the country are dealing with problems and issues similar to those faced by Utah entrepreneurs. The diversity of solutions is both overwhelming and unique. While the effectiveness of a particular program will vary from region to region, an awareness of different programs can only serve to broaden the options for the state of Utah.

Small Business Investment Company (SBIC)

One financial institution overlooked until recently by the local financial community that could help high tech companies and other small firms, is the Small Business Investment Company (SBIC). At the present time Utah does not have an SBIC. Yet, five of the ten largest venture capital firms in the nation are SBICs.

The SBIC is a privately-owned, profit-motivated business, organized under the conditions of the Small Business Investment Act of 1958. SBIC is licensed and regulated through the SBA. The SBIC derives its initial capitalization from private sources and normally becomes eligible to obtain funds from either the federal government or from private financial institutions (banks) through government guaranteed loans. Under this program, the SBIC with private capital totaling at least \$1 million may receive up to three guaranteed debenture dollars for each dollar of private capital raised. In addition, the SBIC with at least 65 percent of its total funds available for investment invested in venture capital can receive an additional fourth dollar of leverage per dollar of private capital. In 1986, two-thirds of the dollars dispersed by SBICs were in the form of equity-type financing.

As a regulated entity, the investment policies of SBICs are much more restrictive than those of any other venture capital institution. These restrictions can, however, be a blessing when there is a full range of alternative venture capital sources. For example, SBIC funds are less likely to co-invest than independent or corporate venture funds, and they are also less likely to be involved with the management of the company. In this respect they act more like a lender than an owner. Companies receiving SBIC investments are less likely to go public and more likely to operate and grow through internal or self-funding. The hurdle rate for an SBIC venture investment is usually lower than for other venture investments. These differences provide an alternative to the entrepreneur who is not attracted to the private venture capital fund.

A good example of a high tech SBIC is the New England Capital Corporation (NECC). This SBIC is a venture capital affiliate of the Bank of New England and Connecticut Bank and Trust. Currently, the fund totals \$15 million. NECC's portfolio includes companies in various industries, stages of development, and locations. Areas of special interest include communications, robotics, computers and software.

In 1986, NECC invested \$3.6 million in 14 new and existing companies; and through July of 1987, it invested another \$2 million in four new companies.

Utah does not have an SBIC office, even though there is a demand. According to Kent Moon, director of the local SBA office, \$23 million in loans have been made to Utah businesses by out-of-state SBICs. In response to this unmet demand, the Salt Lake Chamber of Commerce and the local SBA office have initiated a study to determine the legal ramifications of the Chamber creating a SBIC. Whether or not the Chamber is the best entity to sponsor a SBIC, such action is commendable and needed. Utah's small business and high tech sectors are disadvantaged by not having a local SBIC. Not only are high tech firms having to go outside the state to get SBIC funds, but the absence of an SBIC in Utah could be sending the wrong message to the capital markets. Regardless, the absence of an SBIC in Utah is yet another contributing factor in the capital gap.

CID (Indiana)

The Corporation of Innovation Development (CID) is a privately-owned venture capital investment company founded in 1981 with the objective of making direct investments in Indiana corporations. What makes CID unique from other state-initiated programs is that it used investment tax credits as the vehicle to raise the initial capital fund of \$10 million. As proposed by the General Assembly of the state of Indiana, taxpayers were entitled to a credit against any state tax liability imposed on the taxpayer for a particular taxable year commencing after December 31, 1981, if the taxpayer purchased a "qualified investment" in a "qualified entity". The "qualified entity" was CID and the "qualified investment" was stock or a partnership interest in CID. The enabling legislation contained a detailed three-step formula to calculate the tax credit. The total amount of tax credits allowed under this program could not exceed an aggregate of \$5 million. However, CID eventually raised nearly \$10 million.

While CID was created with the objective of stimulating Indiana's economy through venture investments, the fund had the parallel goal of earning a satisfactory profit for the shareholders. To achieve this dual objective, CID is a long-term investor interested in capital appreciation rather than cash flow to provide a return to shareholders. Because of the long term nature and equity orientation of its

investments, CID acts more like a management partner than simply a capital source. To this end, CID has assembled a team of professionals that assists young companies in decision-making on strategic issues. CID does not seek ownership control nor does it actively participate in the daily management activities in the companies in which it invests. In this respect, the fund acts like a private venture partner.

The usual investment horizon for the funds ranges from four to seven years at which time CID attempts to realize a long-term capital gain. The most common methods of exit are 1) agreed-upon sale of the business, 2) the sale of CID's investment to an agreed-upon third party, 3) repurchase of CID's position by the invested parties, or 4) public offering.

CID invests in a wide range of companies rather than specializing in just one area. CID has invested in a men's clothing manufacturer, a book publisher, a cellular telephone system operator, and a high tech firm that had developed a laser catheter to remove arterial blockages. Even though the portfolio is diversified, the underlying criteria are consistent with the original objectives.

MTDC, MRCR, MCEC (Massachusetts)

The Massachusetts Technology Development Corporation (MTDC) was launched in 1978 to address the then existing "capital gap" for expansion of early-stage technology companies. As private venture capital began to flourish in the state, MTDC changed its focus from early stage companies to start-up companies where the capital gap continued to exist. The fund now specializes in providing capital to small Massachusetts-based technology companies that are trying to expand. In addition, MTDC has made efforts to diversify its investments among different industries and geographic areas in the state.

Through each phase of its operation, MTDC has pursued the following objectives: 1) to create primary employment in technology-oriented industries in the state; 2) to attract and leverage private investment in Massachusetts-based companies; 3) to foster the application of technological innovations where Massachusetts-based firms are, or can be leaders, and lastly; 4) to nurture entrepreneurship.

MTDC has developed several programs to encourage entrepreneurship. One program provides management assistance to small R&D companies that have

received funding through the federal SBIR program, the Massachusetts Centers of Excellence Corporation (MCEC) or other R&D funding sources. In addition, MTDC sponsors entrepreneurial workshops which provide instruction and materials detailing the necessary steps to raise capital and become a product-oriented technological enterprise. In the past eight years, over 300 companies have received assistance from MTDC which has ultimately led to private investment.

Since 1978, MTDC has directly invested a total of \$9.9 million in 35 companies. These direct investments have produced an additional \$44.5 million in private investments at the initial phase of financing. Subsequent rounds of financing in the 35 portfolio companies brought the cumulative private dollars invested to \$184 million. Over the past 12 months, MTDC invested in approximately six high tech firms.

As successful as this program appears on the surface, it has only been in the past few years that it has actually produced a profit. Since 1980 the fund has realized a gain of \$4.6 million (\$3.7 million in 1987) and cumulative losses on both debt and equity investments of \$1.1 million. This results in a net gain of \$3.5 million. These losses underscore an important point -- not all investments will be successful.

Another source of capital that is available to entrepreneurs in Massachusetts is through the Massachusetts Capital Resource Corporation (MCRC). This privately-funded venture capital fund was capitalized through the use of tax credits. Through the use of punitive state taxes, life insurance companies based in Massachusetts are required to invest in the fund. If a life insurance company does not meet quotas set by the legislature (in terms of dollars invested), a special tax is imposed. MCRC provides capital in five areas: 1) equity investments, 2) unsecured debt, 3) working capital, 4) equipment purchases, 5) subordinated debt. The fund is also involved in LBOs.

IVCF (Iowa)

Iowa is another state which initially offered a tax incentive to private investors to capitalize its Venture Capital Fund. However, this incentive is not currently being used; rather, the fund has formed a partnership with institutional investors such as Life Investors Insurance Company of America and Central Life Assurance Company. The Iowa Venture Capital Fund (IVCF) is a \$10.6 million limited partnership

which provides equity capital and management assistance to emerging and later stage manufacturers and service businesses. The fund was formed to focus on investments in Iowa. During its first 18 months of operation, investments were made solely within the state. Thereafter, the fund has invested up to one-third of its capital outside Iowa.

IVCF can invest up to 10 percent of its committed capital in any one investment. First round investment size can range from \$100,000 to \$500,000. The fund will provide financing for companies in all development stages except the seed stage. In analyzing an investment opportunity, IVCF looks for four characteristics. In order of importance they are: 1) a strong management team, 2) unique growth opportunities, 3) exceptional return on investment through high gross margins (50%), 4) cooperative management attitude. Obviously, management is of prime importance. The management team must be financially committed and must have had successful operating experience. Moreover, there must be a strong compatibility between the investors and the management team.

BIDCO, MSF (Michigan)

Through its state pension plan and several economic development departments, the state of Michigan has been active in the venture capital arena. Michigan has taken its involvement in the funding of young companies one step further than most other states using a Business and Industrial Development Corporation (BIDCO) program. Under legislation enacted in May 1986, the state established the Michigan Strategic Fund (MSF) and capitalized it with \$24 million. MSF will make matching equity investments of up to \$2 million per BIDCO on a 2-to-1 private dollars to state dollars ratio. The use of public funds to capitalize BIDCO is a departure from past efforts by other states and promises to expand this investment vehicle. BIDCOs in California, for example, did not receive matching funding from the state. This, according to some, restricted equity involvement in the recipient company. MSF, however, plans to make straight equity investments and to offer subordinated loans with equity kickers such as stock warrants, buyback options on warrants, and royalties on sales.

As of February 1988, only one BIDCO (Arcadia) had been licensed to operate by the state's Financial Institutions Bureau. Arcadia opened its doors in

November 1987 with \$4 million from private investors and \$2 million from the Strategic Fund. Arcadia plans to invest or finance a wide range of companies rather than concentrate on a particular industry. The BIDCO hopes to generate a 20 to 25 percent compound rate of return for equity investors and 2 to 5 percent above prime for debt investments.

The state hopes to accomplish two goals through the BIDCO program. First and foremost, MSF hopes to spur economic development through its matching contribution. The second objective is more in keeping with business objectives; that is, the fund plans to sell the state's shares in BIDCOs at an appropriate time, thereby realizing a profit. Supporters of the program believe these goals are achievable provided the fund avoids pitfalls that trapped BIDCOs in other states. For example, of the eight BIDCOs licensed in California, none are currently operating. These BIDCOs specialized in SBA lending because of a lack of risk capital. When SBA lending was recently cut, these firms could not compete. This forced either a merger with a bank or liquidation. Michigan plans to avoid this fate by acting as both debt and equity lender rather than simply a SBA debt lender. While this role split answers one question, it raises another. "Can a venture capital investor (equity) also be a lender (debt)?" The verdict is still out.

MSCF (Minnesota)

The Minnesota Seed Capital Fund (MSCF) was established in 1980 with state support. The state acted as a catalyst in the effort by initiating the funds development, publicly supporting the sponsors of the fund and by making a small contribution to the fund. Initially, sponsors of the Minnesota fund hoped to raise \$5 million. However, the response was so positive, especially from the business community, that the fund exceeded that amount by \$12 million.

As the name implies, MSCF prefers to invest in companies that are completing the initial R&D phase and are ready to enter the marketplace. The fund will also consider companies that are still in a development stage and need funding to finish a prototype, or to test market a product. The fund is interested in technology-oriented companies that possess proprietary products or processes. The company must be located in the state although companies willing to relocate to Minnesota will be considered. (This requirement is scheduled to be phased out in order to reduce the fund's dependency

on the Minnesota economy.) The last general requirement is that the company must show a potential for a significant rate of return over a five- to ten-year period. Although the fund reports that the initial first stage financing ranges from \$50,000 to \$250,000, because of add-on financing, the fund averages about \$400,000 per investment. To date, the fund has invested in 18 high tech companies.

Since the MSCF is primarily involved with young, inexperienced companies, it is staffed by a team of professionals who can assist the new firm. Most of this staff has "hands-on" experience with high tech firms. The fund has invested the entire original funding and is now in the process of raising a second \$20 million fund. According to one of the investment officers, most of the capital for the second fund has already been raised, and more than likely will exceed \$25 million.

Summary of Programs

As states grapple with fiscal problems, sluggish economies and sunset industries, it only seems reasonable that they become involved in the development of promising young companies. The method of involvement is as varied as the states themselves. In the past 10 years many states have adopted or developed a multitude of financial programs to aid young companies. These programs run the political gauntlet. Michigan's BIDCO program is certainly one of the most experimental. Another option has been to shift investment emphasis and involvement once the private venture industry assumed a more active role. Iowa and Indiana invested as a first step to get the ball rolling and then, once rolling, reduced the state's direct involvement. Massachusetts took a completely different approach by using a punitive tax program to stimulate private investment by insurance companies. Minnesota responded to its capital needs with a seed program that is similar to the Utah Ventures.

Despite these variations on a theme, successful programs share several common characteristics. Successful programs begin with "full commitment" by the state. A full commitment is one which is long lasting, well-funded, and coordinated with state resources. Consider for example, that MTDC just recently posted a net gain after eight years of operations in one of the nation's most active high tech centers. If it takes eight years under the most favorable of circumstances, how long will it take other state programs to show a profit? More

importantly, Massachusetts continued its support during these lean times and created other types of venture programs such as the MCRC, the Massachusetts Development Finance Corporation, Massachusetts Business Development Corporation, Massachusetts Thrift Fund and Economic Stabilization Fund. Each of these agencies can provide either equity capital or debt capital or both to young companies.

Some states have tried to meet the challenges of raising capital by establishing a number of programs. For them, the answer has been to provide many small, exotic programs in an attempt to cover all the bases. Too often, this approach has been unsuccessful because the programs are simply underfunded and too fragmented to be effective. The issue here is not the number of programs, per se, but the commitment that each program receives. Each state must evaluate a particular program as it fits both the resources available and its compatibility with other ongoing programs. This cannot be expressed strongly enough: duplication must be avoided. Without extensive evaluation, the chances of any program succeeding are greatly reduced.

What does all of this portend for Utah? Perhaps the most important thing the state can do is to first identify those approaches that best meet the needs of Utah entrepreneurs. This means that each method should be analyzed to determine both the potential effectiveness, but also the implementation costs and their compatibility with Utah's resources. The program initiated in Iowa illustrates this point. While the Iowa Venture Fund is interested in investing in high tech companies, its portfolio reflects the manufacturing orientation of the state's economy. No venture fund in Utah can be exclusively high tech oriented simply because Utah is not exclusively a high tech economy.

Conclusions

Returning to the question, "Is there enough capital?" the answer is no. There is not enough venture capital for high tech companies in Utah. The acknowledgement of a capital gap is hardly surprising; after all, many entrepreneurs and executives struggle everyday with financial crises revolving around the lack of equity and debt capital. For them, the capital gap is very real and very large. On the other hand, the capital gap problem may not be as large as is perceived locally--nor is the problem insurmountable.

The capital gap seems large because it affects a very specific segment of the industry -- namely, mid-stage financing. Companies with promising innovations can find seed financing in Utah. The venture industry and the state offer such programs. At the opposite end of the financing spectrum (once a company has arrived at the late second stage or third stage) it can find fourth stage financing. A capital gap exists for companies at the first and early second stages. However, as a young high tech center, Utah does not have many companies at this stage so the macro-problem is not severe.

The capital gap problem is not insurmountable simply because the nature of Utah's high tech industry is such that the state has time to prepare. According to a survey recently completed by the Bureau of Economic and Business Research, University of Utah, there are about 300 high tech firms located in Utah. To put this number in a different perspective, each year an established venture capital firm will receive over 500 business proposals from firms seeking capital. From these proposals the investor will fund about 5 percent, or 25 deals -- if he has the money and if the proposal represents a "good deal". Given the investor's required return on investment, even if every high tech company in Utah wanted an infusion of venture capital, only 15 or 20 companies could even qualify for an average first round of funding.

Based on this percentage and the national average investment, a \$30 million capital infusion would more than meet the first round capital gap. However, if other considerations are used to qualify companies (like existing financial arrangements or managerial skill of the founder), at least one-third of the 15 or 20 firms would not be candidates for venture capital and many of the remaining companies would not warrant a \$2 million infusion. There is another consideration which would further eliminate companies. Some firms do not want the restrictions imposed as the result of a relationship with a venture capitalist. These entrepreneurs would rather rely on internal funding and grow at a slower pace than accept a capital infusion by venture capital under the conditions of such an investment. So, after these eliminating considerations, an educated estimate of the capital gap is closer to \$10 or \$15 million. This represents early stage financing for companies with a commercially-proven product and market.

It should be remembered that a capital infusion of even \$15 million would take several years to

allocate by prudent venture capitalists. More than likely, it would take most Utah companies several years to gear up for an infusion of \$2 million dollars. For his part, the venture capitalist would probably stage the investment similar to the method used by Utah Ventures. As the company reaches certain thresholds, the capital is released to further the company's development. This time-release approach effectively reduces today's capital gap. The thrust of this is that it would be very difficult to simply drop \$20 million into Utah's high tech sector and expect it to be a productive investment as soon as it is placed.

While the good news is that the capital gap is not at crisis proportions, the bad news is that in several years many companies funded in the mid-1980s at seed levels will need later stage financing. There are only a few venture firms in the state that can provide or arrange for this type of financing, and even then only in a limited number of cases. This need will become threatening in the coming years; in fact, Utah's capital gap is just beginning to emerge. Those companies funded several years ago through the seed and early stage programs are going

to need many more dollars in the next few years. In other words, while the capital gap problem is not a crisis, it has the potential to become one.

The issue of capital gap from the perspective of the entrepreneur is generally different from that of the professional investor. When a company is beyond seed or idea stage financing, most of its financial needs fall into a more conventional setting. Its concern is one of finding on-going financing. There still is a need for equity dollars, but for the company, the immediacy of operations is paramount. Those executives and founders interviewed stressed the importance and need to develop working relationships with the banking community. Many entrepreneurs felt that the lack of such relationships was the biggest hindrance to their development.

It is recognized that the loss of just one successful high tech firm is a loss Utah cannot afford. One successful high tech firm can provide employment for hundreds of Utahns. In addition, each success enhances Utah's reputation as a high tech center, and reduces the burden of importing risk capital.

Utah Business Statistics

UTAH DATA	Mar. 1987	Mar. 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
Total Personal Income (seasonally adjusted) (mil. of dol.) (q1-)	16,489	19,312	4.5%	19,096	18,365	4.0%
New Corporations (no.)	515	547	6.2%	473	451	4.7%
New Car, Truck and Motorhome Sales (no.)	3,199	5,326	66.5%	5,204	5,837	-19.1%
Agriculture						
Average Prices Recorded by Farmers (dol.)						
Beef Steers and Heifers (cwt) (thous.)	62.00	68.70	10.8%	65.15	56.48	15.3%
Lambs (cwt)	75.10	64.30	-14.4%	72.78	68.37	6.5%
Milk Wholesale (cwt)	12.00	11.50	-4.2%	11.82	11.97	-1.3%
Alfalfa Hay, Baled (per ton)	66.00	75.00	13.6%	69.33	66.39	4.4%
Cattle Slaughtered (live weight) (thous. of lbs.)	39,491	48,344	22.4%	43,691	38,399	13.8%
Construction						
Total Construction (thous. of dol.) ¹	112,917	105,671	-6.4%	123,121	128,032	-3.8%
Residential	54,970	53,495	-2.7%	51,643	59,364	-13.0%
Nonresidential	28,363	40,721	43.6%	41,190	48,438	-15.0%
Public Works and Utilities	29,584	11,455	-61.3%	30,288	20,480	47.9%
Total Permit Construction (thous. of dol.) ²	128,183.7	75,864.9	-40.8%	82,214.5	109,419.0	-24.9%
Residential	53,165.7	38,080.0	-28.4%	38,798.7	57,260.1	-32.2%
Nonresidential	63,583.7	26,343.0	-58.6%	29,777.7	38,288.3	-22.2%
Additions, Alterations and Repairs	11,434.3	11,441.9	0.1%	13,639.0	13,891.1	-1.8%
New Dwelling Units (no.)	842	506	-39.9%	558	1,023	-45.5%
Employment						
Civilian Labor Force (thous.)	753.9	760.2	0.8%	757.8	753.8	0.5%
Total Employed Persons	698.8	716.2	2.5%	711.7	708.2	0.5%
Unemployed Persons	55.1	44.0	-20.1%	46.1	45.4	1.5%
Percent Total Labor Force	7.5	5.8	-22.7%	6.1	6.0	0.8%
Employees on Nonagricultural Payrolls (thous. of jobs)	632.6	643.8	1.8%	643.0	635.5	1.2%
Manufacturing	89.9	95.2	5.9%	93.9	91.2	3.0%
Mining	7.6	8.4	10.5%	8.2	7.7	6.1%
Contract Construction	25.0	21.1	-15.6%	26.1	31.3	-16.4%
Transportation, Communication and Utilities	37.4	38.1	1.9%	38.0	37.4	1.7%
Wholesale Trade	34.8	34.3	-1.4%	35.6	35.8	-0.6%
Retail Trade	115.4	115.8	0.3%	118.5	117.5	0.9%
Finance, Insurance and Real Estate	33.7	33.4	-0.9%	33.8	33.2	1.7%
Services	144.2	153.4	6.4%	147.6	139.8	5.6%
Federal Government	40.5	39.6	-2.2%	39.6	40.5	-2.2%
State Government	39.0	38.6	-1.0%	37.4	38.0	-1.6%
Local Government	65.2	65.8	0.9%	64.4	63.2	1.8%
Average Weekly Hours						
Manufacturing	39.1	39.8	1.8%	40.2	39.7	1.4%
Mining	40.3	43.5	7.9%	41.9	42.0	-0.2%
Wholesale Trade	37.3	38.5	3.2%	38.5	37.4	3.1%
Retail Trade	27.9	27.8	-0.4%	28.2	28.0	0.6%
Amount of Unemployment Compensation (thous. of dol.)	12,319.2	9,606.7	-22.0%	7,027.1	8,770.0	-19.9%
Finance						
Savings, Savings and Loan Association (mil. of dol.)	2,461.1	2,107.4	-14.4%	2,381.7	2,392.6	-0.5%
Tax Collections by the State of Utah (thous. of dol.)						
Total Tax Collections	60,439.3	70,014.8	15.8%	144,183.2	124,757.6	15.6%
Sales and Use Tax	2,996.6	7,481.1	149.7%	49,150.4	46,016.4	6.8%
Motor Fuel Tax	7,287.9	10,566.4	45.0%	10,107.7	7,783.1	29.9%
Individual Income Tax	20,990.1	32,681.3	55.7%	51,021.1	40,807.1	25.0%
Corporation Franchise Tax	5,030.5	1,493.7	-70.3%	6,955.5	4,196.2	65.8%
Production						
Net Electric Power Utilized (mil. of kwh)	1,132.3	1,232.9	8.9%	1,166.0	1,104.3	5.6%
Crude Oil to Refineries (thous. of bbls.)	3,589.5	3,599.0	0.3%	3,786.3	3,911.8	-3.2%
Crude Oil (thous. of bbls.)	2,843.6	2,864.1	0.7%	2,923.5	3,118.9	-6.3%
Natural Gas (mil. of cu. ft.)	19,480.4	22,661.5	16.3%	22,379.7	19,759.3	13.3%
Coal (thous. short tons)	911.0	1,675.0	83.9%	1,451.8	900.0	61.3%
Tourism/Travel						
Air Passengers (total no. on and off) (S.L. Int'l Airport)	983,352	964,406	-1.3%	848,112	839,670	1.0%
Highway Traffic Count Across State Lines	30,008	NA	NA	NA	37,526	NA
Transient Room Taxes (thous. of dol.)	(449.5)	2,090.2	-565.0%	574.5	472.2	21.7%
Visits, State, Nat'l. Parks, Monuments (thous.)	412.8	485.7	17.7%	1,072.1	1,000.2	7.2%
Utilities						
Telephone Lines in Service (Mt. Bell) (Residential)	478,742	486,879	1.7%	481,991	474,104	1.7%
Telephone Lines in Service (Mt. Bell) (Nonresidential)	174,199	179,376	3.0%	177,128	170,275	4.0%
Electric Customers (Residential)	472,120	476,830	1.0%	474,450	464,792	2.1%
Electric Customers (Commercial)	46,308	46,598	0.6%	46,367	45,548	1.8%
Natural Gas Customers (Residential & Commercial)	450,458	461,877	2.5%	449,686	438,431	2.6%
Natural Gas Customers (Industrial)	555	543	-2.2%	551	565	-2.4%

Utah Business Statistics

UTAH DATA	Mar. 1987	Mar. 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
Davis County						
Non-Ag. Employment (thous.)	51.5r	51.1fo	-0.8%	52.6	52.9	-0.7%
Unemployment Rate	5.7r	4.8	-15.8%	5.2	4.8	-8.4%
Auth. Permit Construction (thous. of dol.)	38,895.6	9,562.1	-75.4%	10,009.2	16,544.3	-39.5%
New Dwelling Units (no.)	113	78	-31.0%	84	162	-53.6%
Postal Receipts (thous. of dol.)	388.1	384.6	-0.9%	385.5	NA	NA
Electric Customers (Residential)	47,105	48,050	2.0%	47,609	45,767	4.0%
Electric Customers (Commercial)	3,259	3,384	3.8%	3,320	3,261	1.8%
Natural Gas Customers (Residential)	48,934	50,312	2.8%	49,202	47,055	4.6%
Natural Gas Customers (Industrial)	52	52	0.0%	52	51	1.5%
Telephone Lines in Service (Mt. Bell)(Residential)	54,504	54,929	0.8%	54,895	53,633	2.3%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	10,433	11,156	6.9%	10,740	10,212	5.2%
Salt Lake County						
Non-Ag. Employment (thous.)	329.6r	334.5fo	1.5%	335.1	331.0	1.2%
Unemployment Rate	6.3r	5.4	-14.3%	5.4	5.4	0.0%
Auth. Permit Construction (thous. of dol.)	56,341.5	32,031.2	-43.1%	37,195.8	55,747.7	-33.3%
New Dwelling Units (no.)	366	195	-46.7%	205	473	-56.8%
Postal Receipts (thous. of dol.)	6,971.8	7,095.7	1.8%	7,360.3	7,086.7	3.9%
Electric Customers (Residential)	236,980	240,138	1.3%	237,211	232,919	1.8%
Electric Customers (Commercial)	19,901	20,406	2.5%	20,069	19,484	3.0%
Natural Gas Customers (Residential)	220,345	223,141	1.3%	217,994	214,030	1.9%
Natural Gas Customers (Industrial)	247	233	-5.7%	237	253	-6.4%
Telephone Lines in Service (Mt. Bell)(Residential)	225,928	229,256	1.5%	227,731	223,770	1.8%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	109,047	110,285	1.1%	110,121	108,379	1.6%
Utah County						
Non-Ag. Employment (thous.)	73.1r	74.9fo	2.5%	73.8	72.4	1.9%
Unemployment Rate	8.5r	5.3	-37.6%	6.2	6.9	-9.2%
Auth. Permit Construction (thous. of dol.)	11,057.4	12,914.9	16.8%	12,646.8	9,760.9	29.6%
New Dwelling Units (no.)	143	62	-56.6%	86	107	-19.8%
Postal Receipts (thous. of dol.)	913.6	1,026.8	12.4%	952.1	919.4	3.6%
Electric Customers (Residential)	50,076	51,815	3.5%	52,436	50,009	4.9%
Electric Customers (Commercial)	6,404	5,824	-7.5%	6,167	6,226	-0.9%
Natural Gas Customers (Residential)	60,635	62,017	2.3%	60,615	59,824	1.3%
Natural Gas Customers (Industrial)	67	69	3.0%	69	71	-2.8%
Telephone Lines in Service (Mt. Bell)(Residential)	62,370	64,690	3.7%	62,945	62,221	1.2%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	18,492	19,718	6.6%	19,123	16,580	15.3%
Weber County						
Non-Ag. Employment (thous.)	60.4r	61.2fo	1.3%	60.8	60.2	1.0%
Unemployment Rate	7.3r	6.6	-9.6%	7.0	6.5	6.9%
Auth. Permit Construction (thous. of dol.)	8,372.1	8,235.1	-1.6%	7,764.9	10,085.7	-23.0%
New Dwelling Units (no.)	78	58	-25.6%	63	85	-26.0%
Postal Receipts (thous. of dol.)	675.9	593.1	-12.3%	613.5	625.5	-1.9%
Electric Customers (Residential)	52,822	53,514	1.3%	53,034	52,128	1.7%
Electric Customers (Commercial)	4,835	4,931	2.0%	4,875	4,763	2.4%
Natural Gas Customers (Residential)	49,447	50,083	1.3%	49,157	48,340	1.7%
Natural Gas Customers (Industrial)	84	83	-1.2%	85	86	-1.4%
Telephone Lines in Service (Mt. Bell)(Residential)	45,883	46,209	0.7%	46,044	45,517	1.2%
Telephone Lines in Service (Mt. Bell)(Nonresidential)	10,932	11,714	7.2%	11,209	10,598	5.8%

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Sources:

Personal Income:	Bureau of Economic Analysis, U.S. Department of Commerce
New Corporations:	Utah Secretary of State
New Car and Truck Sales:	Utah State Tax Commission, Economic and Statistical Unit
Agriculture:	U.S. Department of Agriculture, <u>Agriculture, Utah</u> : Utah Crop and Livestock Reporting Service
Construction Data:	F.W. Dodge Statistics and <u>Utah Construction Report</u> , Bureau of Economic and Business Research
Employment Data:	Utah Department of Employment Security
Savings Information:	Utah Savings and Loan Institutions
Tax Collections:	Utah State Tax Commission
Net Electric Power Utilized:	Cooperating Utah power companies
Crude Oil Production:	Area oil refineries
Natural Gas Production:	Utah Department of Oil, Gas, and Mining
Coal Production:	U.S. Department of Energy
Air Passengers:	Salt Lake City International Airport, Statistics Division
Highway Traffic Count:	Utah Department of Transportation
Visits to State and National Parks and Monuments:	U.S. Forest Service, Utah State Parks and Recreation Department
Utilities Data:	Cooperating Utah utility companies
Postal Receipts:	Postmasters in Davis, Salt Lake, Utah, and Weber Counties

Footnotes:

- 1 Obtained from F.W. Dodge Statistics
- 2 Obtained from Utah Construction Report
- 3 Includes services by nonprofit and religious institutions
- 4 Includes public schools and college institutions

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NATIONAL DATA	Mar. 1987	Mar. 1988	% Change From Year Ago	12 Month Average This Year	12 Month Average Last Year	12 Month Average % Change
U.S. Gross National Product (seasonally adjusted) (bil.) (qtl.)	4,377.7	4,665.1	6.6%	4,560.1	4,272.2	6.7%
Total Personal Income (seasonally adjusted) (bil. of dol.)	3,683.4	3,936.7	6.9%	3,805.8	3,584.0	6.2%
Industrial Production Indexes (seasonally adjusted) (1977=100)	127.4	134.7	5.7%	131.7	125.5	5.0%
Total Non-Farm Bus. Expend. on New Plants & Equip. (bil.) (qtl.)	374.2	409.7	9.5%	399.4	378.0	5.7%
Index of Leading Indicators (1967=100)	187.6	191.8	2.2%	191.0	182.0	4.9%
Price Indexes						
Consumer Price Indexes (not seasonally adjusted) (1982-84=100)						
CPI-U (All Urban Consumers) All Items	112.1	116.5	3.9%	114.7	110.2	4.1%
CPI-U (All Urban Consumers) Food & Beverages	112.5	116.0	3.1%	114.4	110.2	3.7%
CPI-U (All Urban Consumers) Housing	112.6	117.0	3.7%	115.3	111.6	3.3%
CPI-U (All Urban Consumers) Transportation	103.3	106.5	3.1%	106.4	101.7	4.6%
CPI-U (All Urban Consumers) Medical Care	127.8	136.3	6.7%	132.2	124.3	6.4%
CPI-U (All Urban Consumers) Energy	85.8	86.5	0.8%	89.1	85.4	4.3%
Producer Price Index (not seasonally adjusted) (1982=100)						
Producer Price Index, All Finished Goods	104.3	106.2	1.8%	105.8	103.2	2.6%
GNP Price Deflator (1982=100) (qtl.)	116.1	119.1	2.6%	118.3	114.9	3.0%
Civilian Employment (seasonally adjusted)						
Total Civilian Labor Force (mil.)	119.2	120.9	1.4%	120.3	118.4	1.6%
Total Civilian Employment (mil.)	111.3	114.1	2.5%	113.2	110.2	2.7%
Unemployment Rate	6.6	5.6	-15.2%	6.0	6.9	-13.7%
Construction						
Total Construction (mil. of dol.)	22,621.9r	21,707.5	-4.0%	20,862.0	19,875.2	5.0%
Residential	11,227.9r	10,898.3	-2.9%	9,759.9	9,917.3	-1.6%
Nonresidential	7,228.9r	6,957.0	-3.8%	7,245.0	6,557.4	10.5%
Non-Building	4,165.1r	3,852.2	-7.5%	3,855.4	3,400.5	13.4%
New Dwelling Units (no.)	148,763r	134,619	-9.5%	125,537	141,072	-11.0%
Interest Rates						
Short Term (3-month Treasury bill rate)	5.56	5.69	2.3%	5.88	5.63	4.4%
Long Term (30-year Treasury bond yields)	7.62	8.61	13.0%	8.62	7.83	10.1%
Prime Rates Charged by Banks on Short-term Business Loans (ave.)	7.50	8.50	13.3%	8.48	7.87	7.7%
Mortgage Rates (new homes)	8.77	8.77	0.0%	8.90	9.50	-6.3%

Sources: Business Conditions Digest, U.S. Department of Commerce: U.S. Gross National Product, Total National Personal Income, Industrial Production Indexes, Total Business Expenditures for New Plant and Equipment, Index of Leading Indicators, GNP Price Deflator, National Employment Data, Interest Rates.

F.W. Dodge Report, McGraw-Hill: National Construction Data.

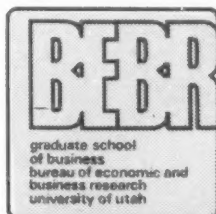
Survey of Current Business, U.S. Department of Commerce: New Home Mortgage Rates.

Utah Labor Market Report, Utah Department of Employment Security: Consumer Price Indexes, Producer Price Indexes.

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